

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 2 of 28

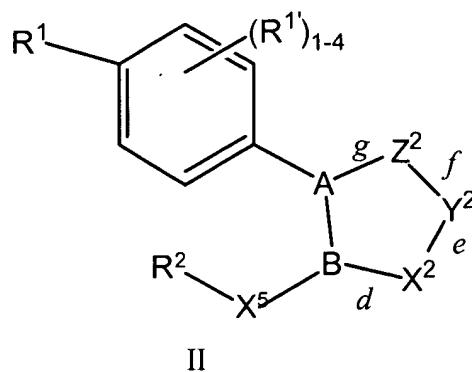
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A compound of Formula (II), or a pharmaceutically acceptable salt thereof;

wherein the compound of Formula (II) is:



II

wherein:

A-B is:

C-N;

when A-B is C-N, sides e and g are double bonds, and sides d and f are single bonds,
-X²-Y²-Z²- is:

-CR⁴=CR⁴-N=;

-N=CR⁴-CR⁵=;

R¹ is:

- (a) -S(O)₂-CH₃;
- (b) -S(O)₂-NR⁸(D¹);
- (c) -S(O)₂-N(D¹)-C(O)-CF₃;
- (d) -S(O)-(NH)-NH(D¹); or
- (e) -S(O)-(NH)-N(D¹)-C(O)-CF₃;

R^{1'} at each occurrence is independently:

- (a) hydrogen;
- (b) halogen;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 3 of 28

(c) methyl; or

(d) CH₂OH;

R² is:

(a) lower alkyl;

(b) cycloalkyl;

(c) mono-, di- or tri-substituted phenyl or naphthyl, wherein the substituents are each independently:

(1) hydrogen;

(2) halo;

(3) alkoxy;

(4) alkylthio;

(5) CN;

(6) haloalkyl, preferably CF₃;

(7) lower alkyl;

(8) N₃;

(9) -CO₂D¹;

(10) -CO₂-lower alkyl;

(11) -(C(R⁵)(R⁶))_z-OD¹;

(12) -(C(R⁵)(R⁶))_z-O-lower alkyl;

(13) lower alkyl-CO₂-R⁵;

(14) -OD¹;

(15) haloalkoxy;

(16) amino;

(17) nitro;

(18) alkylsulfinyl; or

(19) heteroaryl;

R³ is:

(a) hydrogen;

(b) haloalkyl, preferably CF₃;

(c) CN;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 4 of 28

- (d) lower alkyl;
- (e) -(C(R_e)(R_f))_p-U-V;
- (f) K;

(g) unsubstituted or substituted:

- (1) lower alkyl-Q;
- (2) lower alkyl-O- lower alkyl-Q;
- (3) lower alkyl-S-lower alkyl-Q;
- (4) lower alkyl-O-Q;
- (5) lower alkyl-S-Q;
- (6) lower alkyl-O-V;
- (7) lower alkyl-S-V;
- (8) lower alkyl-O-K; or
- (9) lower alkyl-S-K;

wherein the substituent(s) reside on the lower alkyl group;

- (h) Q;
- (i) alkylcarbonyl;
- (j) arylcarbonyl;
- (k) alkylarylcarbonyl;
- (l) arylalkylcarbonyl;
- (m) carboxylic ester;
- (n) carboxamido;
- (o) cycloalkyl;

(p) mono-, di- or tri-substituted phenyl or naphthyl, wherein the substituents are each independently:

- (1) hydrogen;
- (2) halo;
- (3) alkoxy;
- (4) alkylthio;
- (5) CN;
- (6) haloalkyl, preferably CF₃;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 5 of 28

- (7) lower alkyl;
 - (8) N₃;
 - (9) -CO₂D¹;
 - (10) -CO₂-lower alkyl;
 - (11) -(C(R⁵)(R⁶))_z-OD¹;
 - (12) -(C(R⁵)(R⁶))_z-O-lower alkyl;
 - (13) lower alkyl-CO₂-R⁵;
 - (14) -OD¹;
 - (15) haloalkoxy;
 - (16) amino;
 - (17) nitro; or
 - (18) alkylsulfinyl;
- (q) alkenyl;
 - (r) alkynyl;
 - (s) arylalkyl;
 - (t) lower alkyl-OD¹;
 - (u) alkoxyalkyl;
 - (v) aminoalkyl;
 - (w) lower alkyl-CO₂R¹⁰;
 - (x) lower alkyl-C(O)NR¹⁰(R¹⁰);
 - (y) heterocyclicalkyl; or
 - (z) heterocyclic ring-C(O)-;

R⁴, R^{4'}, R⁵ and R^{5'} are each independently:

- (a) hydrogen;
- (b) amino;
- (c) CN;
- (d) lower alkyl;
- (e) haloalkyl;
- (f) alkoxy;
- (g) alkylthio;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 6 of 28

- (h) Q;
- (i) -O-Q;
- (j) -S-Q;
- (k) K;
- (l) cycloalkoxy;
- (m) cycloalkylthio;

(n) unsubstituted, mono-, or di-substituted phenyl or unsubstituted, mono-, or di-substituted benzyl, wherein the substituents are each independently:

- (1) halo;
- (2) lower alkyl;
- (3) alkoxy;
- (4) alkylthio;
- (5) CN;
- (6) haloalkyl, preferably CF₃;
- (7) N₃;
- (8) Q;
- (9) nitro; or
- (10) amino;

(o) unsubstituted, mono-, or di-substituted heteroaryl or unsubstituted, mono-, or di-substituted heteroaryl methyl, wherein the heteroaryl is a monocyclic aromatic ring of 5 atoms, said ring having one heteroatom which is S, O, or N, and, optionally, 1, 2, or 3 additional N atoms; or the heteroaryl is a monocyclic ring of 6 atoms, said ring having one heteroatom which is N, and, optionally, 1, 2, 3, or 4 additional N atoms; said substituents are each independently:

- (1) halo;
- (2) lower alkyl;
- (3) alkoxy;
- (4) alkylthio;
- (5) CN;
- (6) haloalkyl, preferably CF₃;
- (7) N₃;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 7 of 28

- (8) -C(R⁶)(R⁷)-OD¹;
- (9) -C(R⁶)(R⁷)-O-lower alkyl; or
- (10) alkylsulfinyl
- (p) -CON(R⁸)(R⁸);
- (q) -CH₂OR⁸;
- (r) -CH₂OCN;
- (s) unsubstituted or substituted:
 - (1) lower alkyl-Q;
 - (2) -O-lower alkyl-Q;
 - (3) -S-lower alkyl-Q;
 - (4) lower alkyl-O-lower alkyl-Q;
 - (5) lower alkyl-S-lower alkyl-Q;
 - (6) lower alkyl-O-Q;
 - (7) lower alkyl-S-Q;
 - (8) lower alkyl-O-K;
 - (9) lower alkyl-S-K;
 - (10) lower alkyl-O-V; or
 - (11) lower alkyl-S-V;

wherein the substituent(s) resides on the lower alkyl;

- (t) cycloalkyl;
- (u) aryl;
- (v) arylalkyl;
- (w) cycloalkylalkyl;
- (x) aryloxy;
- (y) arylalkoxy;
- (z) arylalkylthio;
- (aa) cycloalkylalkoxy;
- (bb) heterocycloalkyl;
- (cc) alkylsulfonyloxy;
- (dd) alkylsulfonyl;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 8 of 28

- (ee) arylsulfonyl;
- (ff) arylsulfonyloxy;
- (gg) -C(O)R¹⁰;
- (hh) nitro;
- (ii) amino;
- (jj) aminoalkyl;
- (kk) -C(O)-alkyl-heterocyclic ring;
- (ll) halo;
- (mm) heterocyclic ring;
- (nn) -CO₂D¹;
- (oo) carboxyl;
- (pp) amidyl; or
- (qq) alkoxyalkyl;

alternatively, R⁴ and R⁵ together with the carbons to which they are attached are:

- (a) cycloalkyl;
- (b) aryl; or
- (c) heterocyclic ring;

alternatively, R⁴ and R^{4'} or R⁵ and R^{5'} taken together with the carbon to which they are attached are:

- (a) cycloalkyl; or
- (b) heterocyclic ring;

alternatively, R⁴ and R⁵, R^{4'} and R^{5'}, R⁴ and R^{5'}, or R^{4'} and R⁵ when substituents on adjacent carbon atoms taken together with the carbons to which they are attached are:

- (a) cycloalkyl;
- (b) heterocyclic ring; or
- (c) aryl;

R⁶ and R⁷ are each independently:

- (a) hydrogen;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 9 of 28

(b) unsubstituted, mono- or di-substituted phenyl; unsubstituted, mono- or di-substituted benzyl; unsubstituted, mono- or di-substituted heteroaryl; mono- or di-substituted heteroarylmethyl, wherein said substituents are each independently:

- (1) halo;
- (2) lower alkyl;
- (3) alkoxy;
- (4) alkylthio;
- (5) CN;
- (6) haloalkyl, preferably CF₃;
- (7) N₃;
- (8) -C(R¹⁴)(R¹⁵)-OD¹; or
- (9) -C(R¹⁴)(R¹⁵)-O-lower alkyl;
- (c) lower alkyl;
- (d) -CH₂OR⁸;
- (e) CN;
- (f) -CH₂CN;
- (g) haloalkyl, preferably fluoroalkyl;
- (h) -CON(R⁸)(R⁸);
- (i) halo; or
- (j) -OR⁸;

R⁸ is:

- (a) hydrogen;
- (b) K; or
- (c) R⁹;

alternatively, R⁵ and R⁵, R⁶ and R⁷ or R⁷ and R⁸ together with the carbon to which they are attached form a saturated monocyclic ring of 3, 4, 5, 6 or 7 atoms; optionally containing up to two heteroatoms selected from oxygen, S(O)_o or NR_i;

R⁹ is:

- (a) lower alkyl;
- (b) lower alkyl-CO₂D¹;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 10 of 28

(c) lower alkyl-NHD¹;

(d) phenyl or mono-, di- or tri-substituted phenyl, wherein the substituents are each independently:

(1) halo;

(2) lower alkyl;

(3) alkoxy;

(4) alkylthio;

(5) lower alkyl-CO₂D¹;

(6) lower alkyl-NHD¹;

(7) CN;

(8) CO₂D¹; or

(9) haloalkyl, preferably fluoroalkyl;

(e) benzyl, mono-, di- or tri-substituted benzyl, wherein the substituents are each independently:

(1) halo;

(2) lower alkyl;

(3) alkoxy;

(4) alkylthio;

(5) lower alkyl-CO₂D¹;

(6) lower alkyl-NHD¹;

(7) CN;

(8) -CO₂D¹; or

(9) haloalkyl, preferably CF₃;

(f) cycloalkyl;

(g) K; or

(h) benzoyl, mono-, di-, or trisubstituted benzoyl, wherein the substituents are each independently:

(1) halo;

(2) lower alkyl;

(3) alkoxy;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 11 of 28

- (4) alkylthio;
- (5) lower alkyl-CO₂D¹;
- (6) lower alkyl-NHD¹;
- (7) CN;
- (8) -CO₂D¹; or
- (9) haloalkyl, preferably CF₃;

R¹⁰ and R^{10'}, are each independently:

- (a) hydrogen; or
- (b) R¹¹;

R¹¹ is:

- (a) lower alkyl;
- (b) cycloalkyl;
- (c) unsubstituted, mono-, di- or tri-substituted phenyl or naphthyl, wherein the substituents are each independently:

- (1) halo;
- (2) alkoxy;
- (3) alkylthio;
- (4) CN;
- (5) haloalkyl, preferably CF₃;
- (6) lower alkyl;
- (7) N₃;
- (8) -CO₂D¹;
- (9) -CO₂-lower alkyl;
- (10) -C(R¹²)(R¹³)-OD¹;
- (11) -C(R¹²)(R¹³)-O-lower alkyl;
- (12) lower alkyl-CO₂D¹;
- (13) lower alkyl-CO₂R¹²;
- (14) benzyloxy;
- (15) -O-(lower alkyl)-CO₂D¹;
- (16) -O-(lower alkyl)-CO₂R¹²; or

(17) -O-(lower alkyl)-NR¹²R¹³;

(d) unsubstituted, mono-, di- or tri-substituted heteroaryl, wherein the heteroaryl is a monocyclic aromatic ring of 5 atoms, said ring having one heteroatom which is S, O, or N, and, optionally, 1, 2, or 3 additional N atoms; or said heteroaryl is a monocyclic ring of 6 atoms, said ring having one heteroatom which is N, and, optionally 1, 2, or 3 additional N atoms, and wherein said substituents are each independently:

- (1) halo;
- (2) lower alkyl;
- (3) alkoxy;
- (4) alkylthio;
- (5) CN;
- (6) haloalkyl, preferably CF₃;
- (7) N₃;
- (8) -C(R¹²)(R¹³)-OD¹; or
- (9) -C(R¹²)(R¹³)-O-lower alkyl;

(e) unsubstituted, mono- or di-substituted benzoheterocycle, wherein the benzoheterocycle is a 5, 6, or 7-membered ring which contains 1 or 2 heteroatoms independently selected from O, S, or N, and, optionally, a carbonyl group or a sulfonyl group, wherein said substituents are each independently:

- (1) halo;
- (2) lower alkyl;
- (3) alkoxy;
- (4) alkylthio;
- (5) CN;
- (6) haloalkyl, preferably CF₃;
- (7) N₃;
- (8) -C(R¹²)(R¹³)-OD¹; or
- (9) -C(R¹²)(R¹³)-O-lower alkyl;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 13 of 28

(f) unsubstituted, mono- or di-substituted benzocarbocycle, wherein the carbocycle is a 5, 6, or 7-membered ring which optionally contains a carbonyl group, wherein said substituents are each independently :

- (1) halo;
 - (2) lower alkyl;
 - (3) alkoxy;
 - (4) alkylthio;
 - (5) CN;
 - (6) haloalkyl, preferably CF₃;
 - (7) N₃;
 - (8) -C(R¹²)(R¹³)-OD¹; or
 - (9) -C(R¹²)(R¹³)-O-lower alkyl;
- (g) hydrogen; or
- (h) K

R¹² and R¹³ are each independently:

- (a) hydrogen;
- (b) lower alkyl; or
- (c) aryl; or

R¹² and R¹³ together with the atom to which they are attached form a saturated monocyclic ring of 3, 4, 5, 6 or 7 atoms;

R¹⁴ and R¹⁵ are each independently :

- (a) hydrogen; or
- (b) lower alkyl; or

R¹⁴ and R¹⁵ together with the atom to which they are attached form a carbonyl, a thial, or a saturated monocyclic ring of 3, 4, 5, 6 or 7 atoms;

Q is:

- (a) -C(O)-U-D¹;
- (b) -CO₂-lower alkyl;
- (c) tetrazolyl-5-yl;
- (d) -C(R⁷)(R⁸)(S-D¹);

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 14 of 28

- (e) $-C(R^7)(R^8)(O-D^1)$; or
- (f) $-C(R^7)(R^8)(O\text{-lower alkyl})$;

X^5 is:

- (a) $-(CR^{31}R^{32})_a-$;
- (b) $-(CR^{31}R^{32})_{bb}-A^1-$;
- (c) $-A^1-(CR^{31}R^{32})_{bb}-$;
- (d) $-CR^{31}R^{32}-A^1-CR^{31}R^{32}-$;
- (e) $-CR^{31}=$; or
- (f) $-A^1$;

A^1 is:

- (a) oxygen;
- (b) thio;
- (c) sulfinyl;
- (d) sulfonyl; or
- (c) $-N(R^{33})-$;

R^{31} and R^{32} are each independently:

- (a) hydrogen;
- (b) lower alkyl;
- (c) substituted lower alkyl;
- (d) lower alkoxy;
- (e) lower haloalkyl; or
- (f) halo; or

R^{31} and R^{32} taken together are;

- (a) oxo;
- (b) thial;
- (c) oxime; or
- (d) hydrazone;

R^{33} is:

- (a) lower alkyl;
- (b) hydrogen; or

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 15 of 28

(c) -C(O)H;

a is an integer equal to 1 or 3;

bb is an integer equal to 2 or 3;

D¹ is:

(a) hydrogen or

(b) D;

D is:

(a) V; or

(b) K;

U is:

(a) oxygen;

(b) sulfur; or

(c) -N(R_a)(R_i)-;

V is:

(a) -NO;

(b) -NO₂; or

(c) hydrogen

K is -W_{aa}-E_b-(C(R_e)(R_f))_p-E_c-(C(R_e)(R_f))_x-W_d-(C(R_e)(R_f))_y-W_i-E_j-W_g-(C(R_e)(R_f))_z-U-V;

wherein aa, b, c, d, g, i and j are each independently an integer from 0 to 3;

p, x, y and z are each independently an integer from 0 to 10;

W at each occurrence is independently:

(a) -C(O)-;

(b) -C(S)-;

(c) -T-;

(d) -(C(R_e)(R_f))_h-;

(e) alkyl;

(f) aryl;

(g) heterocyclic ring;

(h) arylheterocyclic ring, or

(i) -(CH₂CH₂O)_q-;

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 16 of 28

E at each occurrence is independently a -T- group, an alkyl group, an aryl group, a heterocyclic ring, -(C(R_e)(R_f))_h-; an arylheterocyclic ring or -(CH₂CH₂O)_q-;

h is an integer from 1 to 10;

q is an integer from 1 to 5;

R_e and R_f are each independently a hydrogen, an alkyl, a cycloalkoxy, a halogen, a hydroxy, an hydroxyalkyl, an alkoxyalkyl, an arylheterocyclic ring, a cycloalkylalkyl, a heterocyclicalkyl, an alkoxy, a haloalkoxy, an amino, an alkylamino, a dialkylamino, an arylamino, a diarylamino, an alkylarylamino, an alkoxyhaloalkyl, a haloalkoxy, a sulfonic acid, a sulfonic ester, an alkylsulfonic acid, an arylsulfonic acid, an arylalkoxy, an alkylthio, an arylthio, a cyano, an aminoalkyl, an aminoaryl, an aryl, an arylalkyl, a carboxamido, a alkylcarboxamido, an arylcarboxamido, an amidyl, a carboxyl, a carbamoyl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarbonyl, an arylcarbonyl, an ester, a carboxylic ester, an alkylcarboxylic ester, an arylcarboxylic ester, a haloalkoxy, a sulfonamido, an alkylsulfonamido, an arylsulfonamido, an alkylsulfonyl, an alkylsulfonyloxy, an arylsulfonyl, an arylsulfonyloxy, a urea, a nitro, -T-Q'-, or -(C(R_g)(R_h))_k-T-Q' or R_e and R_f taken together are an oxo, a thial, a heterocyclic ring, a cycloalkyl group, an oxime, a hydrazone or a bridged cycloalkyl group;

Q' is -NO or -NO₂;

k is an integer from 1 to 3;

T is independently a covalent bond, a carbonyl, an oxygen, -S(O)_o- or -N(R_a)R_i-,

o is an integer from 0 to 2,

R_a is a lone pair of electrons, a hydrogen or an alkyl group;

R_i is a hydrogen, an alkyl, an aryl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarboxylic ester, an arylcarboxylic ester, an alkylcarboxamido, an arylcarboxamido, an alkylsulfinyl, an alkylsulfonyl, an arylsulfonyloxy, an arylsulfinyl, an arylsulfonyloxy, an arylsulfonyl, a sulfonamido, a carboxamido, a carboxylic ester, an aminoalkyl, an aminoaryl, -OR'_i, -CH₂-C(T-Q')(R_g)(R_h), a bond to an adjacent atom creating a double bond to that atom or -(N₂O₂-)•M⁺, wherein M⁺ is an organic or inorganic cation; with the proviso that when R_i is -CH₂-C(T-Q')(R_g)(R_h) or -(N₂O₂-)•M⁺; then "-T-Q'" can be a hydrogen, an alkyl group, an alkoxyalkyl group, an aminoalkyl group, a hydroxy group or an aryl group;

R_g and R_h at each occurrence are independently R_e;

R'_1 is independently selected from R_{12} .

2. (Original) A composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier.

3. (Withdrawn) A method for treating or reducing inflammation, pain or fever in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

4. (Withdrawn) A method for treating a gastrointestinal disorder, or improving the gastrointestinal properties of a COX-2 inhibitor in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

5. (Withdrawn) The method of claim 4, wherein the gastrointestinal disorder is an inflammatory bowel disease, Crohn's disease, gastritis, irritable bowel syndrome, ulcerative colitis, a peptic ulcer, a stress ulcer, a bleeding ulcer, gastric hyperacidity, dyspepsia, gastroparesis, Zollinger-Ellison syndrome, gastroesophageal reflux disease, a bacterial infection, short-bowel (anastomosis) syndrome, or a hypersecretory state associated with systemic mastocytosis or basophilic leukemia and hyperhistaminemia

6. (Withdrawn) A method for facilitating wound healing in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

7. (Withdrawn) The method of claim 6, wherein the wound is an ulcer.

8. (Withdrawn) A method for treating or reversing renal and/or respiratory toxicity in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

9. (Withdrawn) A method for treating a disorder resulting from elevated levels of COX-2 in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

10. (Withdrawn) The method of claim 9, wherein the disorder resulting from elevated levels of COX-2 is angiogenesis, arthritis, asthma, bronchitis, menstrual cramps, premature labor, tendinitis, bursitis, a skin-related condition, neoplasia, an inflammatory process in a disease, an ophthalmic disorder, pulmonary inflammation, a central nervous system disorder, allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, a microbial infection, a

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 18 of 28

cardiovascular disorder, a urinary disorder, a urological disorder, endothelial dysfunction, organ deterioration, tissue deterioration, or activation, adhesion and infiltration of neutrophils at the site of inflammation.

11. (Withdrawn) The method of claim 10, wherein the neoplasia is a brain cancer, a bone cancer, an epithelial cell-derived neoplasia (epithelial carcinoma), a basal cell carcinoma, an adenocarcinoma, a gastrointestinal cancer, a lip cancer, a mouth cancer, an esophageal cancer, a small bowel cancer, a stomach cancer, a colon cancer, a liver cancer, a bladder cancer, a pancreas cancer, an ovary cancer, a cervical cancer, a lung cancer, a breast cancer, a skin cancer, a squamus cell cancer, a basal cell cancer, a prostate cancer, a renal cell carcinoma, a cancerous tumor, a growth, a polyp, an adenomatous polyp, a familial adenomatous polyposis or a fibrosis resulting from radiation therapy.

12. (Withdrawn) The method of claim 10, wherein the central nervous system disorder is cortical dementia, Alzheimer's disease, vascular dementia, multi-infarct dementia, pre-senile dementia, alcoholic dementia, senile dementia, or central nervous system damage resulting from stroke, ischemia or trauma.

13. (Withdrawn) A method for inhibiting platelet aggregation in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

14. (Original) The composition of claim 2, further comprising at least one therapeutic agent.

15. (Original) The composition of claim 14, wherein the therapeutic agent is a steroid, a nonsteroidal antiinflammatory compound, a 5-lipoxygenase (5-LO) inhibitor, a leukotriene B₄ receptor antagonist, a leukotriene A₄ hydrolase inhibitor, a 5-HT agonist, a 3-hydroxy-3-methylglutaryl coenzyme A inhibitor, a H₂ antagonist, an antineoplastic agent, an antiplatelet agent, a thrombin inhibitor, a thromboxane inhibitor, a decongestant, a diuretic, a sedating or non-sedating anti-histamine, an inducible nitric oxide synthase inhibitor, an opioid, an analgesic, a *Helicobacter pylori* inhibitor, a proton pump inhibitor, an isoprostane inhibitor, or a mixture of two or more thereof.

16. (Original) The composition of claim 15, wherein the nonsteroidal antiinflammatory compound is acetaminophen, aspirin, diclofenac, ibuprofen, ketoprofen, indomethacin or naproxen.

17. (Withdrawn) A method for treating or reducing inflammation, pain or fever in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 14.

18. (Withdrawn) A method for treating a gastrointestinal disorder, or improving the gastrointestinal properties of a COX-2 inhibitor in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 14.

19. (Withdrawn) The method of claim 18, wherein the gastrointestinal disorder is an inflammatory bowel disease, Crohn's disease, gastritis, irritable bowel syndrome, ulcerative colitis, a peptic ulcer, a stress ulcer, a bleeding ulcer, gastric hyperacidity, dyspepsia, gastroparesis, Zollinger-Ellison syndrome, gastroesophageal reflux disease, a bacterial infection, short-bowel (anastomosis) syndrome, or a hypersecretory state associated with systemic mastocytosis or basophilic leukemia and hyperhistaminemia.

20. (Withdrawn) A method for facilitating wound healing in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 14.

21. (Withdrawn) The method of claim 20, wherein the wound is an ulcer.

22. (Withdrawn) A method for treating or reversing renal and/or respiratory toxicity in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 14.

23. (Withdrawn) A method for treating a disorder resulting from elevated levels of COX-2 in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 14.

24. (Withdrawn) The method of claim 23, wherein the disorder resulting from elevated levels of COX-2 is angiogenesis, arthritis, asthma, bronchitis, menstrual cramps, premature labor, tendinitis, bursitis, a skin-related condition, neoplasia, an inflammatory process in a disease, an ophthalmic disorder, pulmonary inflammation, a central nervous system disorder, allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, a microbial infection, a cardiovascular disorder, a urinary disorder, a urological disorder, endothelial dysfunction, organ deterioration, tissue deterioration, or activation, adhesion and infiltration of neutrophils at the site of inflammation.

25. (Withdrawn) The method of claim 24, wherein the neoplasia is a brain cancer, a bone cancer, an epithelial cell-derived neoplasia (epithelial carcinoma), a basal cell carcinoma, an adenocarcinoma, a gastrointestinal cancer, a lip cancer, a mouth cancer, an esophageal cancer, a small bowel cancer, a stomach cancer, a colon cancer, a liver cancer, a bladder cancer, a pancreas cancer, an ovary cancer, a cervical cancer, a lung cancer, a breast cancer, a skin cancer, a squamus cell cancer, a basal cell cancer, a prostate cancer, a renal cell carcinoma, a cancerous tumor, a growth, a polyp, an adenomatous polyp, a familial adenomatous polyposis or a fibrosis resulting from radiation therapy.

26. (Withdrawn) The method of claim 24, wherein the central nervous system disorder is cortical dementia, Alzheimer's disease, vascular dementia, multi-infarct dementia, pre-senile dementia, alcoholic dementia, senile dementia, or central nervous system damage resulting from stroke, ischemia or trauma.

27. (Withdrawn) A method for inhibiting platelet aggregation in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 14.

28. (Original) A composition comprising at least one compound of claim 1 and at least one compound that donates, transfers or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase.

29. (Original) The composition of claim 28, further comprising a pharmaceutically acceptable carrier.

30. (Original) The composition of claim 28, wherein the compound that donates, transfers, or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor or is a substrate for nitric oxide synthase is an S-nitrosothiol.

31. (Original) The composition of claim 30, wherein the S-nitrosothiol is S-nitroso-N-acetylcysteine, S-nitroso-captopril, S-nitroso-N-acetylpenicillamine, S-nitroso-homocysteine, S-nitroso-cysteine, S-nitroso-glutathione, or S-nitroso-cysteinyl-glycine.

32. (Original) The composition of claim 30, wherein the S-nitrosothiol is:

- (i) HS(C(R_e)(R_f))_mSNO;
- (ii) ONS(C(R_e)(R_f))_mR_e; or
- (iii) H₂N-CH(CO₂H)-(CH₂)_m-C(O)NH-CH(CH₂SNO)-C(O)NH-CH₂-CO₂H;

wherein m is an integer from 2 to 20; R_e and R_f are each independently a hydrogen, an alkyl, a cycloalkoxy, a halogen, a hydroxy, an hydroxyalkyl, an alkoxyalkyl, an arylheterocyclic ring, a cycloalkylalkyl, a heterocyclicalkyl, an alkoxy, a haloalkoxy, an amino, an alkylamino, a dialkylamino, an arylamino, a diarylamino, an alkylarylamino, an alkoxyhaloalkyl, a haloalkoxy, a sulfonic acid, a sulfonic ester, an alkylsulfonic acid, an arylsulfonic acid, an arylalkoxy, an alkylthio, an arylthio, a cyano, an aminoalkyl, an aminoaryl, an aryl, an arylalkyl, a carboxamido, a alkylcarboxamido, an arylcarboxamido, an amidyl, a carboxyl, a carbamoyl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarbonyl, an arylcarbonyl, an ester, a carboxylic ester, an alkylcarboxylic ester, an arylcarboxylic ester, a haloalkoxy, a sulfonamido, an alkylsulfonamido, an arylsulfonamido, an alkylsulfonyl, an alkylsulfonyloxy, an arylsulfonyl, an arylsulfonyloxy, a urea, a nitro, -T-Q'-, or -(C(R_g)(R_h))_k-T-Q' or R_e and R_f taken together are an oxo, a methanthial, a heterocyclic ring, a cycloalkyl group, an oxime, a hydrazone or a bridged cycloalkyl group; Q' is -NO or -NO₂; and T is independently a covalent bond, a carbonyl, an oxygen, -S(O)_o- or -N(R_a)R_i-, wherein o is an integer from 0 to 2, R_a is a lone pair of electrons, a hydrogen or an alkyl group; R_i is a hydrogen, an alkyl, an aryl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarboxylic ester, an arylcarboxylic ester, an alkylcarboxamido, an arylcarboxamido, an alkylsulfinyl, an alkylsulfonyl, an alkylsulfonyloxy, an arylsulfinyl, an arylsulfonyloxy, an arylsulfonyl, a sulfonamido, a carboxamido, a carboxylic ester, an aminoalkyl, an aminoaryl, -CH₂-C(T-Q')(R_g)(R_h), or -(N₂O₂-)•M⁺, wherein M⁺ is an organic or inorganic cation; with the proviso that when R_i is -CH₂-C(T-Q')(R_g)(R_h) or -(N₂O₂-)•M⁺; then "-T-Q'" can be a hydrogen, an alkyl group, an alkoxyalkyl group, an aminoalkyl group, a hydroxy group or an aryl group; and R_g and R_h at each occurrence are independently R_e.

33. (Original) The composition of claim 28, wherein the compound that donates, transfers, or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase is L-arginine, L-homoarginine, N-hydroxy-L-arginine, nitrosated L-arginine, nitrosylated L-arginine, nitrosated N-hydroxy-L-arginine, nitrosylated N-hydroxy-L-arginine, nitrosated L-homoarginine, nitrosylated L-homoarginine), citrulline, ornithine, glutamine, lysine, an arginase inhibitor or a nitric oxide mediator.

34. (Original) The composition of claim 28, wherein the compound that donates, transfers, or releases nitric oxide, or induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase is:

- (i) a compound that comprises at least one ON-O- or ON-N- group;
- (ii) a compound that comprises at least one O₂N-O-, O₂N-N- or O₂N-S- or group;
- (iii) a N-oxo-N-nitrosoamine having the formula: R¹"R²"N-N(O-M⁺)-NO, wherein R¹" and R²" are each independently a polypeptide, an amino acid, a sugar, an oligonucleotide, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted hydrocarbon, or a heterocyclic group, and M⁺ is an organic or inorganic cation.

35. (Original) The composition of claim 34, wherein the compound comprising at least one ON-O- or ON-N- group is an ON-O-polypeptide, an ON-N-polypeptide, an ON-O-amino acid, an ON-N-amino acid, an ON-O-sugar, an ON-N-sugar, an ON-O-oligonucleotide, an ON-N-oligonucleotide, a straight or branched, saturated or unsaturated, substituted or unsubstituted, aliphatic or aromatic ON-O-hydrocarbon, a straight or branched, saturated or unsaturated, substituted or unsubstituted, aliphatic or aromatic ON-N-hydrocarbon, an ON-O-heterocyclic compound or an ON-N-heterocyclic compound.

36. (Original) The composition of claim 34, wherein compound comprising at least one O₂N-O-, O₂N-N- or O₂N-S- group is an O₂N-O-polypeptide, an O₂N-N-polypeptide, an O₂N-S-polypeptide, an O₂N-O-amino acid, O₂N-N-amino acid, O₂N-S-amino acid, an O₂N-O-sugar, an O₂N-N-sugar, O₂N-S-sugar, an O₂N-O-oligonucleotide, an O₂N-N-oligonucleotide, an O₂N-S-oligonucleotide, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O₂N-O-hydrocarbon, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O₂N-N-hydrocarbon, a straight or branched, saturated or unsaturated, aliphatic or aromatic, substituted or unsubstituted O₂N-S-hydrocarbon, an O₂N-O-heterocyclic compound, an O₂N-N-heterocyclic compound or an O₂N-S-heterocyclic compound.

37. (Original) The composition of claim 28, further comprising at least one therapeutic agent.

38. (Original) The composition of claim 37, wherein the therapeutic agent is a steroid, a nonsteroidal antiinflammatory compound, a 5-lipoxygenase (5-LO) inhibitor, a leukotriene B₄

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 23 of 28

receptor antagonist, a leukotriene A₄ hydrolase inhibitor, a 5-HT agonist, a HMG CoA inhibitor, a H₂ antagonist, an antineoplastic agent, an antiplatelet agent, a thrombin inhibitor, a thromboxane inhibitor, a decongestant, a diuretic, a sedating or non-sedating anti-histamine, an inducible nitric oxide synthase inhibitor, an opioid, an analgesic, a *Helicobacter pylori* inhibitor, a proton pump inhibitor, an isoprostane inhibitor, or a mixture of two or more thereof.

39. (Original) The composition of claim 38, wherein the nonsteroidal antiinflammatory compound is acetaminophen, aspirin, diclofenac, ibuprofen, ketoprofen, indomethacin or naproxen.

40. (Withdrawn) A method for treating or reducing inflammation, pain or fever in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 29 or 37.

41. (Withdrawn) A method for treating a gastrointestinal disorder, or improving the gastrointestinal properties of a COX-2 inhibitor in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 29 or 37.

42. (Withdrawn) The method of claim 41, wherein the gastrointestinal disorder is an inflammatory bowel disease, Crohn's disease, gastritis, irritable bowel syndrome, ulcerative colitis, a peptic ulcer, a stress ulcer, a bleeding ulcer, gastric hyperacidity, dyspepsia, gastroparesis, Zollinger-Ellison syndrome, gastroesophageal reflux disease, a bacterial infection, short-bowel (anastomosis) syndrome, or a hypersecretory state associated with systemic mastocytosis or basophilic leukemia and hyperhistaminemia.

43. (Withdrawn) A method for facilitating wound healing in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 29 or 37.

44. (Withdrawn) The method of claim 43, wherein the wound is an ulcer.

45. (Withdrawn) A method for treating or reversing renal and/or respiratory toxicity in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 29 or 37.

46. (Withdrawn) A method for treating a disorder resulting from elevated levels of COX-2 in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 29 or 37.

47. (Withdrawn) The method of claim 46, wherein the disorder resulting from elevated levels of COX-2 is angiogenesis, arthritis, asthma, bronchitis, menstrual cramps, premature labor, tendinitis, bursitis, a skin-related condition, neoplasia, an inflammatory process in a disease, an ophthalmic disorder, pulmonary inflammation, a central nervous system disorder, allergic rhinitis, respiratory distress syndrome, endotoxin shock syndrome, atherosclerosis, a microbial infection, a cardiovascular disorder, a urinary disorder, a urological disorder, endothelial dysfunction, organ deterioration, tissue deterioration, or activation, adhesion and infiltration of neutrophils at the site of inflammation.

48. (Withdrawn) The method of claim 47, wherein the neoplasia is a brain cancer, a bone cancer, an epithelial cell-derived neoplasia (epithelial carcinoma), a basal cell carcinoma, an adenocarcinoma, a gastrointestinal cancer, a lip cancer, a mouth cancer, an esophageal cancer, a small bowel cancer, a stomach cancer, a colon cancer, a liver cancer, a bladder cancer, a pancreas cancer, an ovary cancer, a cervical cancer, a lung cancer, a breast cancer, a skin cancer, a squamous cell cancer, a basal cell cancer, a prostate cancer, a renal cell carcinoma, a cancerous tumor, a growth, a polyp, an adenomatous polyp, a familial adenomatous polyposis or a fibrosis resulting from radiation therapy.

49. (Withdrawn) The method of claim 47, wherein the central nervous system disorder is cortical dementia, Alzheimer's disease, vascular dementia, multi-infarct dementia, pre-senile dementia, alcoholic dementia, senile dementia, or central nervous system damage resulting from stroke, ischemia or trauma.

50. (Withdrawn) A method for inhibiting platelet aggregation in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 29 or 37.

51. (Withdrawn) A kit comprising at least one compound of claim 1.

52. (Withdrawn) The kit of claim 51, further comprising (i) at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase; (ii) at least one therapeutic agent; or (iii) at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase and at least one therapeutic agent.

53. (Withdrawn) The kit of claim 52, wherein the at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase; the at least one therapeutic agent; or the at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase and at least one therapeutic agent; are in the form of separate components in the kit

54. (Withdrawn) A kit comprising the composition of claim 14, 29 or 37.

55. (Previously Presented) A compound selected from the group consisting of:

1-(1-(cyclohexylmethyl)-3-(hydroxymethyl)pyrazol-5-yl)-4-(methylsulfonyl) benzene;
4-(1-(cyclohexylmethyl)-3-((2-hydroxyethoxy)methyl)pyrazol-5-yl)-1-(methylsulfonyl)benzene;
1-(3-(hydroxymethyl)-1-benzylpyrazol-5-yl)-4-(methylsulfonyl)benzene;
1-(3-((1E)-3-hydroxyprop-1-enyl)-1-(cyclohexylmethyl)pyrazol-5-yl)-4-(methylsulfonyl) benzene;
1-(1-(cyclohexylmethyl)-3-(3-hydroxypropyl)pyrazol-5-yl)-4-(methylsulfonyl)benzene;
1-(1-(cyclohexylmethyl)-3-vinylpyrazol-5-yl)-4-(methylsulfonyl)benzene;
methyl (2E)-3-(1-(cyclohexylmethyl)-5-(4-(methylsulfonyl)phenyl)pyrazol-3-yl) prop-2-enoate;
methyl 5-(4-(methylsulfonyl)phenyl)-1-benzylpyrazole-3-carboxylate;
1-(1-(cyclohexylmethyl)-3-((nitrooxy)methyl)pyrazol-5-yl)-4-(methylsulfonyl)benzene;
4-(1-(cyclohexylmethyl)-3-((2-(nitrooxy)ethoxy)methyl)pyrazol-5-yl)-1-(methylsulfonyl) benzene;
4-(methylsulfonyl)-1-(3-((nitrooxyl)methyl)-1-benzylpyrazol-5-yl)benzene;
1-(3-((1E)-3-nitrooxyprop-1-enyl)-1-(cyclohexylmethyl)pyrazol-5-yl)-4-(methylsulfonyl) benzene;
1-(1-(cyclohexylmethyl)-3-(3-(nitrooxy)propyl)pyrazol-5-yl)-4-(methylsulfonyl) benzene;
or a pharmaceutically acceptable salt thereof.

56. (Original) A composition comprising at least one compound of claim 55 and a pharmaceutically acceptable carrier.

57. (Original) The composition of claim 56, further comprising (i) at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase; (ii) at least one therapeutic agent; or (iii) at least one compound that donates, transfers or releases nitric oxide, induces the production of endogenous nitric oxide or endothelium-derived relaxing factor, or is a substrate for nitric oxide synthase and at least one therapeutic agent.

Response and Amendment under 37 CFR § 1.111

Application No. 10/628,375

Page 26 of 28

58. (Withdrawn) A kit comprising at least one compound of claim 55.